# Annual Summary of Fire Protection Programs - CY 1991

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The following information is being provided to the Department of Energy for the compilation of statistical information. The information is a summary of property and programmatic losses to government programs. The information is presented in the format requested in the DOE Fire Protection Resource Manual.

**1.Fire Loss, total property loss and estimated replacement values.**

There were no fire losses during CY 91.

Electrical failures in two instances caused property damages of $1,500 and $18,000 (see Section 2 for details). There was no programmatic impact or environmental damage.

A sprinkler system discharged after it was damaged during freezing weather. Damage due to the water discharge from the broken fitting was minimal. Bldg. 317's $10,000 damage was primarily due to asbestos clean up from adjacent building materials (see Section 3 for more details).

**2.A brief description of each fire loss over $5,000 and any other that may have lessons learned for other sites.**

*Linac pump room motor controller failure*: $18,000 damage was incurred in an electrical pump motor when the starter coil remained energized due to a broken "Run-Auto-Start" switch. Personnel during the day shift knew of the problem and always manually returned the switch to run. It became a problem when the pump was reset after a water leak after normal hours. The switch remained in start due to a broken return spring. An active Preventative Maintenance program would have promptly repaired the unit.

**3.A description of any fire involving the operations of an automatic fire suppression system (sprinklers, halon, carbon dioxide, dry chemical, etc.) regardless of the amount of loss. Descriptions should include relevant details of the system (system type, number if sprinklers heads operated, etc.) Accidental system discharges should also be documented by system type and reason for system operation.**

(Occurrence Report PE-1991-1025) Bldg. 317's is protected throughout by a dry pipe sprinkler system. Improper pitching of pipe on the second floor created a trapped section of water just after the riser feed to the second floor. The Building had not been winterized and the attic vents were open. The building is heated by baseboard electric heaters. Insulation was present at the suspended ceiling. The sprinkler pipe ran above the insulation. After a cold snap, the broken section of piping leaked. The Fire/Rescue Group responded and the area was secured.

(Occurrence Report BNL-BNL-91-003) A portable trailer on the east side of Bldg. 933 is protected by a halon system. Halon discharge is by a single zone connected to rate compensated heat detectors and manual release stations. An "alarm only" zone of smoke detectors are provided. The Kidde CR-1 control panel has an immediate discharge and is not provided with an abort. A fire alarm electrician was in the trailer testing the fire detection. The worker was unaware that the detection was connected to a halon system, a sub panel on the main building fire alarm system. The halon system was hidden in a small closet. Ninety pounds of halon was released.

(Occurrence Report PE-1991-1026, PE-1991-1027) Bldgs. 197 and 185 are protected by wet pipe sprinkler systems. Both system experienced damage when freezing weather froze piping. The piping was located above a suspended ceiling (Bldg. 185 had insulation on the ceiling, Bldg. 197 had insulation on the roof line). When the weather warmed, leaks developed. No damage was incurred. Bldg. 185 loss heat due to a local steam trap failure. Bldg. 197 lost heat when the occupants turned off the room's unit heater, instead of setting it back to a lower temperature. The Fire/Rescue Group responded when call by building occupants regarding water from the sprinkler systems.

(Occurrence Report 91-016) The MPS magnet is protected by a local application halon system. In the magnet gap two zones of heat detector wire is run between the detector panels. A low temperature zone provides alarm only. The higher temperature zone activates the halon discharge cycle. No abort is provided to the occupants. The control panel is a Kidde MA 2200. During the running cycle, the pulsing magnet pulled the high temperature wire from it's mounting. The end of the wire was not terminated and shorted across a metal bar. It released 360 pounds of halon.

**4.A summary of costs incurred during the year for recurring fire protection programs (fire department or fire brigade costs, service or maintenance contracts, equipment purchases, etc.)**

*Fire Department/Fire Protection* *$2,033,000*[1]

Includes operating, training and material costs for hazardous material response, EMS, building inspection/preplanning, fire extinguisher C and training program, SCBA, fire protection related cylinders, vehicles, operations costs and central station repairs for the Site Fire Alarm System; 29 FTE in the Fire/Rescue Group, 2 FTE in Fire Protection and 1 FTE managing the Site Fire Alarm System. Excludes three incident scene safety officers and 1/2 FTE secretary.

*Fire Protection System Testing* *$160,000*

Includes the labor and materials for an outside contractor to conduct testing in compliance with NFPA 72 H.

*Fire Protection In House Labor* *$511,250*

Includes routine, day to day modifications and repairs to the systems on site; 8 fire alarm electricians, .75 plumbers, one supervisory and materials.

***Total Recurring Costs: $2,704,250***

**5.Changes to fire protection personnel staffing levels.**

Added one FTE to act as Site Fire Alarm System Manager.

[1]Costs reflect salary and benefits. Costs do not reflect additional overhead charges.

**6.Fire Protection accomplishments in the subject CY.**

Sprinkler protection was activated in Bldgs. 51, 348, 918. *($320,400)*

*Provided fire alarm service to Hazardous Waste Management's dry chemical systems at Bldg 436. ($30,000)*

*Installed a fire wall, Bldg 930C's exterior transformer yard. ($110,000)*

*Added sprinkler protection to Bldg. 1005S power supply room. ($6,500)*

*Provided sprinkler protection for Bldg 820's experimental area. ($18,400)*

*Complete sprinkler protection installed in:*

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| *Child Day Care Facility* | *($75,000)* |
| *Science Education Facility* | *($15,000)* |
| *Radiation Therapy Facility* | *($5,000)* |
| *NET Addition to Bldg 515* | *($35,000)* |

*Upgraded fire alarm systems (new panels, bells and devices) in:*

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|---|---|
| *Bldg. 912* | *($62,000)* |
| *Bldg 318* | *($2,100)* |
| *Bldg. 490* | *($20,000)* |
| *Bldg. 510* | *($50,000)* |
| *Bldg. 750* | *($44,000)* |
| *Five other panels* | *($15,000)* |

*Upgraded halon systems arrangements at Bldg. 463 STEM. ($10,500)*

***Total: $898,900***

**7.Fire protection surveys appraisals completed during the subject year CY 91.**

Internal BNL Life Safety Code Surveys done on thirty nine buildings (Life Safety Code Surveys Phase I and II).

**8.Fire Protection improvements planned during the current CY 92.**

Place in service a Hazardous Material Response Trailer.

Integrate a site wide chemical survey into the Cameo preplanning system.

Finish sprinkler installations for Bldgs. 120M, 129, 211, 477, 488, 184, 321, 326, 912, 462, and 479.

Start construction on sprinkler protection for Bldgs. 339, 526, 923, 464, 412, 926, and 936.

Finish the site wide Life Safety Survey program.

Start a site wide Fire Hazard Analysis program.

Develop a BNL Model Fire Protection Program for the operating departments on site.

Provide sprinkler protection for the new RHIC Engineering Design Facility.

Replace the obsolete fire alarm panel in the NSLS.

**9.Any other significant fire protection items of note.**

None.